"An Easy Method of Drawing the Normals to a Parabola from any Point," by S. G. Barton.

"A Graphical Solution of Cubic Equations," by S. G. Barton.

"The Color of Faint Stars," by F. H. Seares.

"The Moon's Mean Longitude, 1908 to 1913," by F. E. Ross.

"Proper Motion of Telescopic Stars," by G. C. Comstock.

"Errors in the Right Ascensions of Newcomb's Fundamental Catalogue," by W. S. Eichelberger and H. R. Morgan.

"Stellar Parallaxes with the 40-inch Refractor," by F. Slocum and S. A. Mitchell.

"The Objective of the Sproul Telescope," by J. A. Miller and R. W. Marriott.

"Wendell's Photometric Measurements," by E. C. Pickering.

"On the Cepheid Type of Variation," by H. N. Russell.

"Oscillations in the Periods of Cluster Variables and the Coincidence of Visual and Photographic Maxima," by Harlow Shapley.

"The Discovery of Three Naked-eye Variable Stars," by Harlow Shapley.

"Note on the Use of Diffraction Effects in Stellar Parallax Work," by Frederick Slocum.

"Observations of Nebulæ with an Objective-prism Camera," by E. B. Frost and H. L. Alden.

"The Location of the Sun's Reversing Layer," by S. A. Mitchell.

"Spectroscopic Notes from the Detroit Observatory," by R. H. Curtiss.

"Spectrographic Observations of the Nebulæ," by V. M. Slipher.

"The Transmission of Terrestrial Radiation by the Earth's Atmosphere in Summer and Winter," by F. W. Very.

"Note on the Spectrum and Radial Velocity of Ψ Persei," by Paul Merrill.

"The General Magnetic Field of the Sun," by G. E. Hale, F. Ellerman, and A. van Maanen.

"Color Equations of Photographs taken with the 16-inch Metcalf Telescope," by Henrietta S. Leavitt.

"Report of the Committee on Photographic Astrometry: I. Experiments with Wide-angle Cameras; II. Experiments with a Stationary Telescope," by Frank Schlesinger, Chairman.

The next meeting of the society will be held at Northwestern University in August of 1914.

Philip Fox,
Secretary

SOCIETIES AND ACADEMIES

THE ACADEMY OF SCIENCE OF ST. LOUIS

At the meeting of the Academy on January 5, Dr. Victor E. Emmel, of the Washington University Medical School, read a paper on "The Problem of the Origin of the Non-nucleated Red Blood Corpuscles."

Dr. Emmel stated that the various views which have arisen in the history of the problem may be briefly stated as including that of intra-cellular nuclear disintegration, nuclear persistence, the hematoblast theory, intra-cellular formation, and the nuclear extrusion theory. With the exception of the hematoblast theory, all of these views are still being seriously discussed, although at the present time that of nuclear extrusion has the greater number of adherents. In contrast to these theories the following results of a study of blood cultures and fresh and fixed blood of the pig embryo appear to support another possible mode of origin for the non-nucleated red blood corpuscles.

It was found that the erythroblast of the pig embryo in place of being spherical, as generally described, may in the later stages of cytomorphosis, assume a biconcave or cup shape; its nucleus becomes smaller, more compact, eccentric in position, and not infrequently flattened in form; mechanically rotated, the erythroblasts tend to orient themselves with the nuclear region remaining on the under side, as if loaded; and that their reaction to changes in osmotic conditions indicates a structural difference between the nuclear and cytoplasmic poles. These observations were discussed with reference to the question of the correlation of the form of the definite plastid with the enucleation of the erythroblast, and formation of a lecithin containing membrane, hemoglobin, differentiation, and the factors involved in determining the eccentric position of the nucleus.

In some eighty culture experiments non-nucleated erythrocytes or plastids were observed to arise from the parent erythroblast by a process of cytoplasmic constriction. In size, form, hemoglobin content and stain these culture plastids are comparable to the normal circulatory plastids. Observations on living and fixed material indicate the occurrence of a similar process within the embryo. These results accordingly raise the question whether the origin of non-nucleated red blood corpuscles by a process of cytoplasmic constriction rather than by nuclear extrusion or intracellular nuclear disintegration does not merit more serious consideration.

G. O. James,
Corresponding Secretary